

CHLORIDE OF AMMONIUM

A

SPECIFIC THERAPEUTIC AGENT

IN THE

**TREATMENT OF HEPATITIS AND ABSCESS OF
THE LIVER,**

WITH ILLUSTRATIVE CASES

BY

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P R E F A C E.

The pages which follow have been drawn, to some extent, from a paper, "On the use of Chloride of Ammonium in the Treatment of Suppurative Hepatitis, and chronic affections of the liver," contributed to the *Lancet* in the latter part of December 1869, and which was published in that Journal of May 7th, 1870.

At that time, I cherished the belief, that a more extended experience in the use of "the remedy" would not fail to furnish fresh proof of its efficacy, in certain hepatic diseases—and so far, I am glad to say, my most sanguine expectations have been fulfilled. It now remains to be seen whether it will prove equally efficacious in a variety of climates, and in other hands, and whether I am justified in now conferring on it, for the first time, the title of "a specific" in the cure of Hepatic affections. Time will decide both points; meanwhile I have received favorable accounts, concerning its use, from Tonghoo a place which is said to be somewhat similar to Hyderabad Deccan in climate, where Hepatitis is so prevalent and fatal.

The season of the rains in India, is rapidly approaching, in which, and in the succeeding cold season, many fall victims to the hepatitis which then prevails. I am induced therefore to lay the following pages (hastily put together and sensible of their faults) before my professional brethren in this country, believing that they will be serviceable in the alleviation of suffering, the saving of life, and, in however slight a degree, the advancement of the healing art.

If, however, we desire to attain success, we must deserve it ; and if, in the course of a severe and protracted illness, the means recommended in these pages, be faithfully and carefully carried out, in most cases, success may be confidently expected ; but on the contrary should, a desultory practice be followed, and the medicine be not regularly and perseveringly administered, and attention to the diet and nursing be not strictly enforced, nothing but disappointment need be looked for.

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Rangoon, }
3rd June 1870. }

CHLORIDE OF AMMONIUM

A SPECIFIC IN

HEPATITIS AND HEPATIC ABSCESS.

Hepatitis is a disease, which is the cause of much sickness, invaliding, and mortality, among the European forces in India, and its tendency to eventuate in hepatic abscess, renders it one of the most formidable with which the practitioner in this country, has to contend. The treatment of suppurative inflammation of the liver is acknowledged on all hands to be very unsatisfactory; mercury is not only useless, but pernicious, and we search in vain among the numerous text books, for a therapeutic agent of sufficient efficacy to combat the disease.

Such being the case, I am induced to bring to the notice of the profession, a remedy which has proved of signal value in my hands, in the numerous cases in which it has been employed by me, and I may add, also, by others who have witnessed its remarkable success, and have in consequence been induced to give it a trial.

Chloride of Ammonium has been for a long time used by the Germans in frequently repeated small doses in hepatitis, and both the Germans and French, esteem it a valuable remedy in many

diseases, in which we either employ mercury, or other alterative deobstruents. Morhead in his researches, in a foot note states, that he has no experience of the remedy, but says the Indian practitioner will do well to try it. Dr. Clement Williams now of Mandalay, formerly in the 68th Light Infantry and first Political Agent at Mandalay, informed me that, when in his regiment, he was in the habit of using the Chloride of Ammonium in hepatic affections with marked success.*

Should a more extended trial in other hands, and in other parts of India, under a variety of climates and circumstances, contribute on the whole to like favorable results, the much dreaded suppurative hepatitis may be as effectually controlled and cured, as its twin associate dysentery, by the reintroduction of the Ipecacuanha treatment in large doses—thanks to the labors of a few Army Medical Officers.

Before proceeding to the cases which I am about to give, it will be necessary to make some brief remarks on the disease and its general treatment, for the better explaining the action of the Chloride of Ammonium, the stage of the disease in which it is applicable, and the points to be observed in its administration.

When hepatitis occurs in an individual of good diathesis, and is seen early and met by judicious treatment, the symptoms, local and general, will

* Most systematic writers on the practice of Medicine, in treating of hepatitis, make no mention of Chloride of Ammonium in its treatment; a few, allude to it cursorily, among the medicines which have been recommended in Chronic hepatitis (cirrhosis) (*Watson, Tanner*), or as an eliminant when suppuration has taken place (*Morehead*), or merely as a mild tonic in Hepatic abscess. (*Copland*).

for the most part gradually disappear, and the patient be restored to health. It is found however in actual practice, that in consequence of bad diathesis, advanced stage, or other cause, recovery by resolution does not take place, suppuration occurs, and hepatic abscess is formed. It is of importance to detect this event promptly and without hesitation, and to mark its progress, because it calls for a line of treatment different from that suitable to the antecedent stages.* In the earlier stages, the antiphlogistic regimen and treatment are indicated according to the acuteness and severity of the symptoms, local and general, and the constitution of the patient. Should there be no accompanying dysentery, a mild purgative may be administered at the commencement, with a view of clearing out the primæ viæ and relieving congestion of the portal circulation; afterwards saline diaphoretics and diuretics, in frequently repeated small doses, should be administered; till their action is well established, after which, they may be given in larger doses, and at longer intervals. I have found a mixture containing *Liquor Ammoniacæ* acet. drs. ii. with *Tinct: Hyoscyami* m. v. in each dose, administered every half hour or hour, to give most relief, allaying the feverish symptoms and calming the nervous system: while the administration of from Dr. ss. to Dr. i. of the latter (*Tinct: Hyoscyami*) at bed time, after the repeated small doses during the day, will often have the effect of inducing a little refreshing sleep, a point of great importance in this disease. The local application of ice, for a considerable period, watching well its effects, or fomentations, or bran poultices to the seat of pain in the right hypochondrium, will also act as

* See Morehead's Researches.

powerful auxiliaries and give much relief. In some few cases, the application of six or eight leeches, when there is much pain and tenderness and the patient is not reduced, may be necessitated, but in general even this amount of local depletion is not required.

The diet should consist of arrowroot, sago, milk and water ; barley water may be taken freely as a drink, and afterwards beef tea may be allowed.

By a careful adhesion to the above system of treatment in a considerable number of cases, in which the inflammation has not gone beyond the stage of vascular turgescence or commencing exudation, resolution may be effected ; and here it must be borne in mind that complete restoration of the inflamed portion or portions of the liver, (for it is rarely that general inflammation exists,) is not coincident with the cessation of febrile symptoms and local sense of pain, and symptoms referable to the affected part; in fact, recovery must be considered incomplete till several days have elapsed from the cessation from pain and febrile disturbance.*

During this time, the patient must be confined to bed, with strict attention to diet, carefully watched, and any derangement of secretions corrected by gentle means. But the symptoms instead of being removed may be only moderated by the above treatment; exudation of plastic lymph may have taken place, degenerating into pus and terminating in abscess, the deranged state of the capillary circulation in its immediate neighbourhood preventing its removal by absorption.

* See Morehead's researches.

On the other hand it frequently happens, especially in Military practice, that the disease does not come under treatment in the early stages, and not till the peculiar symptoms pointing to abscess either impending or already formed, are manifested. In either case, the treatment above described as suitable in primary acute hepatitis is no longer indicated, the treatment must now be tonic and restorative,—the diet should consist of milk, light puddings, broths or animal jellies,—and wine or other stimulants may be cautiously administered, if these do not excite the pulse, or produce irritation of the gastro-intestinal surfaces.*

At this period of the disease, when the acute symptoms have been allayed, and suppuration is either threatened or already established,—or, in the event of the patient having come under observation in the primary acute stage, as soon as the symptoms, local and general, shall have been abated, and diaphoresis freely established, by the means described at page 3, the Chloride of Ammonium should be administered in doses of grs. xx. morning and evening, noting carefully its effects, which are striking and remarkably regular in the order of their occurrence.

As a general rule, about fifteen minutes after taking the medicine, the patient experiences a sensation of warmth in the epigastrium, which, by and by extends, pervading the abdomen, and gradually becomes diffused over the entire cutaneous

* Chloride of Ammonium, being itself, a general stimulant, does away with the necessity for the employment of alcoholic stimulants, in the considerable quantities otherwise required; and unlike them, exercises, I believe, a specific therapeutic action on the liver, instead of tending to increase the diseased condition, which it is our object to remedy.

surface. The nervous system is at the same time exhilarated sympathetically, and probably also through the circulation, for the patient now feels "light headed," (as he generally expresses it), and at times drowsy. The acute pain previously experienced, in the right hypochondrium and along the margins of the lower right ribs, extending, as the case may be, forwards across the epigastrium, or backwards to the lumbar region, is either entirely removed, or in its stead, pain is sometimes referred to a point higher up, and towards the base of the axillary region, where before, none was complained of. At this stage of the operation of the remedy, patient often falls asleep relieved of all his distressing symptoms.

After the lapse of another quarter of an hour, a free and equable perspiration takes place over the entire surface, which lasts for a period varying from one to two hours: in the mean time, the pain which had shifted from the lower margins of the inferior ribs of right side, will again manifest itself, at or near its original position, or may be referred to one totally different, as the lumbar region, or even the right hip. With the evening dose, similar effects will be observed to take place, with like regularity and certainty; and with each succeeding one, the interval of relief from pyrexia and pain referred to the part affected, as well as sympathetic pains of shoulder, arm etc. (which latter are at times distressing), will gradually become longer, till at length, in favorable cases, the relief becomes complete and constant. After several doses of the medicine, the urine is much increased in quantity, (particularly in the cold season), is limpid, and passed without uneasiness. The increase is chiefly at night, causing the patient to awake

suddenly, perhaps three or four times, for the purpose of micturition. *

After a few days the appetite is much improved, and patient craves for more food, which may be given provided it be light, nutritive and easily digested; but solid food should on no account be permitted, as its ingestion would in all probability provoke a recurrence of all the acute symptoms.

During the use of the medicine, care must be taken that patient does not catch cold when perspiring; and when perspiration has ceased, the surface should be dried with warm towels, otherwise chills may be experienced.

In no standard work on Therapeutics which I have consulted, do I find the slightest allusion to the above remarkable train of effects following on the exhibition of Chloride of Ammonium. In

* The effects on the pulse, taken in conjunction with the above, may be interesting. The observations were made in the case of a patient suffering from Hepatitis, and may be taken as an illustration of the effects generally.

Before taking medicine.—Pulse 78, full and regular.

Skin cool and dry. Complains of pain in right hypochondrium, and along the margins of the right lower ribs.

8 Minutes after taking Medicine.—Feeling of gentle heat in epigastrium which gradually pervaded the whole body. Pain shifted to axillary space.

30 Minutes after taking Medicine.—Pulse 82. Soft and compressible. Surface bathed in perspiration and a little above the normal temperature.

1 hour after taking Medicine.—Pulse 68, skin below normal temperature. Perspiration gradually ceasing. Patient feels comfortable.

2 hours after taking Medicine.—Pulse 76, skin covered with perspiration. Temperature normal, pain returned to a point midway between the margins of ribs and axilla.

one work it is described as a general stimulant, in another as a diaphoretic, while in a third it is merely noted as a laxative. In one only is it said to be useful combined with taraxacum in cirrhosis. The remarkable effects so constantly following its use in hepatitis are nowhere mentioned.

The silence of authors on the above points, coupled with the fact that in some cases in which I have used it, either as an experiment in health, or as a remedy in diseases, other than hepatitis, it has either been without appreciable effects, or, if any, these have been but slight, and not characteristic, seems to point to the inference that the medicine is not only a specific in certain hepatic affections, but that its peculiar action, being manifested in any given obscure case, may be considered as diagnostic of hepatic disease. The above observations however are thrown out as only probable, and suggestive of further enquiry.

A remedy which is at once found to possess the several properties of a stimulant of the capillary circulation, general and special, which is at the same time a powerful diuretic and diaphoretic, and withal anodyne, cannot but exercise a remarkable influence on the processes of nutrition and absorption, secretion and excretion.

The secretions of the skin, kidneys, and liver, abound in salts ; one of these organs may therefore become vicarious of another in removing those matters from the system. The researches of Dr. Beale also render it probable "that in disease, certain saline substances are accumulated, in large quantity, at the seat of disease, at the expense of some secretion of which they form a normal constituent."

By its marked diuretic effects, solely, Chloride of Ammonium is capable of exercising a powerful influence in relieving the portal circulation, and bringing about a healthy state of the capillary circulation of the liver, thereby causing absorption and elimination of diseased products. In veterinary practice, says Dr. Joy (*Library of Medicine*) diuretics are used with excellent effects in combating pulmonary, and other internal inflammations, as well as for getting the animal speedily into condition, and improving the state of his hide, and it is probable they are capable of more extensive application than is commonly supposed.

The cases which follow will serve to illustrate the treatment pursued in many others, and, I may add, with equal success. The first, is a case of well marked acute hepatitis, the second, third, and fourth, are cases of hepatic abscess, and the fifth, which serves to illustrate the efficacy of the remedy in chronic hepatitis, is by Dr. W. Alexander, Staff Assistant Surgeon (formerly doing duty with the 2nd Battalion 21st R. N. B. Fusiliers) and is given verbatim.

Case I. Pte. A. McK.—Upwards of six years in India. (had an attack of hepatitis in 1865.) Admitted on the 18th September 1869, complaining of acute pain, of right side, extending from the epigastrium round the margins of lower right ribs to spine—aggravated on the slightest pressure; severe pains of right shoulder, extending down outer side of right upper arm; unable to lie on left side on account of dragging pain in right hypochondrium when in that position. Complains also of severe pain at intervals of some minutes shooting through temples; burning pain in eyeballs; skin hot; tongue furred (white); pulse frequent. The above symptoms, in a minor degree, had been present for some time previous to admission—evening chills with cold clammy sweats and general pyrexia—towards early part of night. Was ordered a tepid bath with cold applications to head—bran poultice to side and to have Mist Diaphoret. oz. i. with Tinct. Hyosc. m. v. every two hours.

20th.—Febrile symptoms have subsided; pain of side and shoulder much abated. To have Chloride of ammon. grs. xx in oz. ii. Cinnam:water, morning and evening; Beef Tea diet and lemonade as drink.

25th.—Is much better, Continue medicine.

28th.—Since the 26th complete freedom from pain of side and shoulder; cutaneous and renal secretions much increased; appetite improves can take deep breath and lie on left side without pain or uneasiness.

2nd. Oct.—Discharged convalescent. *

Case 2 Dr. D. B.—Nearly two years in India, admitted on the evening of the 5th Oct. 1869. Complained of purging frequently during the day and previous night, also of acute pain over entire surface of abdomen. There was great tenderness over right hypochondrium and abdomen generally, and the slightest pressure of the finger caused great increase of pain—Countenance expressive of suppurative hepatitis—anxious, pale and bathed with cold perspiration, tongue coated; skin dry but of natural heat; pulse frequent.

Owing to the great severity of the pain, six leeches were applied to the side and the patient had a tepid bath with much relief to the symptoms, local and general. Had Ammon: Chlor: grs. xx.—and in case the purging continued, was ordered, Pil:—Hydrarg: gr. viii; Pulv: Ipecac: Comp. gr. xii. m. divide in pil: iv:—one to be taken every two hours.

6th.—After consultation this morning it was agreed that the case was one of undoubted abscess of the liver, of a severe nature, and in which the prognosis was anything but favourable. Surface was now cold; face and hands bedewed with cold sweat; pulse 92, small and weak; was not purged during the night. To have brandy flip and three pints beef tea as nourishment. 1½ p. m. surface still cold, pulse 92,—another brandy flip, continue bran poultice, and to have Ammon: Chlor: grs. xx. 4 p. m. surface warm, pulse 92, perspiring freely; passed a large quantity of high coloured urine during the day. To repeat Chlor: Ammon:—

7th.—Bowels moved five times during night, motions feculent; passed urine six times during the night; perspired a

* *Note*.—After attending hospital for a short time this man returned to his duty and up to date 20th Decr. 1869 has had no recurrence of pain or other symptoms and his general health is better than it had been for a long time previously.

good deal. Repeat pills ordered on the 5th, to take one every two hours. Beef tea diet, four ounces port wine.

8th.—Pulse 84, feels better, bowels quiet.

11th.—Pain of side much relieved, looks better, bowels regular. Had some sleep during the night; pulse 80. Complains of short dry cough which commenced yesterday about noon and continues to be troublesome. Tea diet, two pints beef tea, two pints milk, six ounces port wine, and barley water for drink. Continue medicine.

17th.—Since last report has continued pretty much the same with slight accessions of pain in side and febrile symptoms from time to time; last night pain was very severe, easier this morning. Continue medicine; apply ice to side. *Vespere*—Feels the ice agreeable, pain easier—pulse 76.

18th.—Much relieved, slept well last night, appetite good. Continue Chlor: ammon:—

27th.—Since last report has continued gradually to improve; appears cheerful this morning, feels and looks much better; Can lie on either side with perfect ease; on taking a deep inspiration feels a slight catch in breathing. Continue Chlor: ammon:—

20th Novr.—Since last report his health and spirits have improved daily; is now able to move about the ward without pain or uneasiness; fulness of side, which was observed from an early period of the disease, has disappeared and patient can bear considerable pressure over hepatic region without pain.

Note.—Up to date, (20 Decr. 1869) Patient has continued in hospital convalescent and is now taking Chloride of Ammonium in grs. xv. doses twice a day; his appetite is good and he is gradually gaining strength.

Case 3.—Drummer J. S. 2-21st Fusiliers, 5 years in India, admitted into Hospital on the 21st December 1869, complaining of acute pain and tenderness over the entire abdomen, towards evening pain of right hypochondrium was also complained of, Decubitus dorsal, unable to turn on either side, or take a deep inspiration. Countenance sallow and anxious, skin hot; pulse frequent, tongue furred, white; six leeches were at once applied to affected side, after which he had a tepid bath, and bran poultice to right hypochondrium. Was ordered Liquor: Amon: acet. Drs. ii, with Tinct. Hyoseyami m. v. every half hour. Barley water to drink.

22nd.—Abdominal pain relieved. Pain of right side and along inferior margins of lower right ribs continues, the slightest pressure being intolerable. Skin cool and moist, pulse frequent; to have Chloride of ammonium grs. xx, twice daily. Beef tea two pints; barley water four pints.

23rd.—(*Vespere*).—Was seized with sickness of stomach, and vomited a quantity of green bilious fluid, when he says he “felt something tear” in his right side.

December 24th.—The medicine yesterday had the effect of relieving local pain and tenderness, and induced free action of the skin and kidneys, Pulse 102, irritable; skin bathed in cold perspiration, Tongue cleaning;—pain of side relieved: feels weak. Ordered beef tea four pints, (to be boiled down to two).

Six ounces of Port wine; barley water for his thirst.

Vespere :—During the day patient became alarmingly ill, and was, for a short time, semi-collapsed, requiring the exhibition of stimulants. etc., with the effect of restoring the pulse and heat of surface. Well marked hectic fever; surface bathed in cold clammy perspiration; countenance sunken, anxious and murky; pulse 124, small and irritable. Continue medicine; diet as before.

25th.—Expresses himself as better this morning. Slept some during the night. Pain of side relieved, but from time to time returns slightly. Each dose of the medicine brings the usual two hours or more of relief—Pulse 108; surface bathed in perspiration. Cont: med: Diet as before with two pints of milk.

26th.—Slept during the night—looks more cheerful, skin cool, tongue clean; pulse 98. Pain of side is now but slight. Expresses a wish to have the medicine more frequently,—owing to the relief from pain experienced after its ingestion; repeat the medicine, thrice daily.

27th.—Is better,—pulse 96—Cont: Med:

29th.—Since last report, hectic fever, with evening exacerbations and profuse sweating, has been present. There is considerable fulness of right hypochondrium and toward margins of right inferior ribs; but there is little pain of those parts except on pressure or lying on left side. Cont: Med: etc.

January 2nd 1870.—Since last report has steadily improved; Countenance bright and cheerful—Appetite improving. Cont. med, twice daily.

4th.—Still some fever, increasing towards evening. Is however on the whole improving and looks hopeful and cheery. Pulse 92, soft and pretty full. Cont : Med :

8th.—Progressing favorably—Pulse 88, appetite good. Fullness of right side gone, and moderate pressure over hepatic region causes no pain. Febrile symptoms are now but slight.

11th.—Since last report fever has returned with evening exacerbations. Skin hot, pulse 101, irritable. Cont : Med : thrice daily.

12th.—Felt much better yesterday evening after midday dose, slept well during the night. Pulse, 90, skin cool and moist.

19th.—Since last reports has been almost free from fever; pulse 88, skin cool, appetite good.

23rd.—Is daily gaining health and strength; pulse 86, fuller and stronger.

27th.—Permitted to sit up a little during the day. Low pudding diet and two eggs.

February 9th.—Since last report has steadily improved in health and has been able to take exercise on foot in the hospital enclosure. Has taken no medicine for several days. Discharged to proceed to England with the invalids of the season, for change of air.

Case 4. 7th May 1870.—Private R. T. $11\frac{3}{12}$ years in India, was admitted into Hospital yesterday from off guard, doubled up with acute pain of right hypochondrium, extending round to loins and upwards to top of right shoulder, was unable to stand erect. Surface bedewed with cold perspiration. Had a bran poultice to his side, and an anodyne draught. For the past nine months has suffered pain from time to time in right hypochondrium, with accompanying chills at night, pyrexia, and cold sweating. The liver is enlarged and acute pain is felt at a point between the 5th and 6th ribs, midway from their extremities, aggravated on the slightest pressure. Decubitus dorsal—unable to lie on either side; tongue slightly furred, moist, broad and flabby, presenting at the sides, indentations of the teeth; skin perspirable; pulse of good volume. 84; urine high colored. Or-

dered Liquor ammon : acet. drs. ii, with Tinct, Hyoseyami, m. v, in barley water every hour. Six leeches over the seat of pain in right hypochondrium, and at 5 p. m. to have grs. xx, Chloride of Ammonium.

8th May.—The usual characteristic effects followed the exhibition of the medicine yesterday evening, but, (as in the case of Pte. F——, another case of hepatic abscess at present under treatment), patient felt a chill and a sensation of cold for some time before the sensation of heat commenced. (This phenomenon was however, a purely subjective symptom as was evidenced afterwards by thermometric observation, and may depend on difference of climate, the rains having just commenced). Patient felt drowsy, and fell asleep in about half an hour after the dose, and awoke, in an hour or so, as he expressed it, "light and refreshed, and able to bear the weight of his own body" which before distressed him. This morning he feels no pain in the recumbent position, and can move slightly in bed without pain; pulse 98. Tongue slightly furred. Continue Chloride of ammonium grs. xx, twice daily.

9th May.—Is much easier; no pain of side except on a deep inspiration; pulse 100; marked hectic symptoms have been present since yesterday, pointing unmistakably to the existence of Abscess of the Liver.

10th May.—Yesterday it was hot and oppressive and patient was bathed in perspiration, his pulse was weak and frequent and he was ordered four ounces of port wine. This morning he is much better; pulse 79, pretty full; countenance cheerful. Perspires much less. Continue medicine.

13th May.—Progressing favorably since last report; but there is slight pyrexia especially towards evening, evidenced in increased heat of hands and arms—and forehead and face feels hot at times. Pulse this morning 64, full and regular. To have a dose of simple diaphoretic mixture at 11 A. M, and again at 2 P. M.

15th.—Is much better; Diaphoretic mixture relieved the feverish symptoms; skin now cool and perspirable, tongue clean; pulse 62, appetite returning. Continue Chloride of Ammonium morning and evening; Liquor: Ammon: Acet: Dr. i. with Tinct: Hyoseyami: m. v. in the interval, as before.

18th May.—Doing well—pulse 56, full, slow and regular; port wine, four ounces.

26th May.—Since last report, has continued steadily to improve; tongue clean, smaller, not so flabby as formerly and indentations caused by teeth disappearing. Hepatic dullness commences over sixth rib of right side, and extends about half an inch below margin of right lower ribs in a gently curved line upwards towards epigastrium. *Pari passu* with the improvement of the symptoms, local and general, the action of the medicine has been less and less manifested, so that its effects are now not so marked.

30th May.—Since last report, patient has been allowed to sit up, from time to time, daily; he is now convalescent, and beyond feeling side a little stiff is free from pain or other uneasiness. The edge of the Liver can no longer be traced under the margins of lower ribs, and firm pressure causes no pain over the hepatic region.

Case 5. *Chronic Hepatitis*.—Pte. D. M. 2-21st Fusiliers. A stout muscular man of intemperate habits; with ten years service, six of which has been spent in India, was admitted into the detachment hospital at Port Blair on August 1st 1869, having a tumour which is described by the Medical Officer in charge, as follows:—

“A swelling the size of an orange was discovered in the epigastric region, exactly in the mesial line, perfectly circumscribed and immovable when grasped by the hand or when the body is turned on either side. He states that he strained himself a few days before admission and never saw the swelling until then.”

He remained under treatment till the middle of September when he was forwarded to the Regimental Hospital at Rangoon, with the history of the case from which the above is taken. On presenting himself at Hospital he was carefully examined by both Dr. Stewart and myself: but we failed to detect any tumour or swelling of any kind. He was admitted however and kept under observation and in a few days the case was diagnosed as one of Chronic Hepatitis; the chief symptoms being a constant pain in epigastrium and hepatic region, a furred tongue, feeling of nausea after food and constipation. Leeches were applied followed by poultices, and Nitro-Muriatic acid, was administered with considerable benefit and relief; but it was not till I commenced to give Muriate of Ammonia in 20 grain-doses that he got rid of these symptoms: first the pain became less annoying and gradually ceased, the tongue cleaned, at the

same time the secretions (especially the urine) increased in quantity.

The effects of the medicine are described by the patient as producing a glow of heat and a feeling of warmth and comfort, followed by copious perspiration and an increase in the quantity of urine. Ten days after commencement of the treatment he was discharged well.

It will be seen that purgatives, commonly recommended at the onset of the disease, have been carefully avoided, and for this reason, that, I believe in many instances, the exhibition of such irritants, lays the foundation of the dysentery so often an accompaniment. A mild purgative may be prescribed at the outset, if indicated; but, with the use of Chloride of Ammonium, its repetition will seldom be required.

Counter-irritants, too, with the exception of sinapisms, in a few instances, have not been employed: blisters are contra-indicated, owing to their irritant action on the kidneys, which would prevent the due elimination of diseased products by those emunctories.

There is a risk also "that the cutaneous and
 " sub-cutaneous fulness, caused by serous effusion,
 " consequent on the irritation of a blister, may,
 " if present at, and below the margin of the right
 " ribs, be mistaken for the sign of liver enlarge-
 " ment, and an erroneous inference, in regard to
 " the progress of the disease, be therefore enter-
 " tained." (*Morhead.*)

It would be superfluous to give any more cases in detail—Many interesting ones, however, are on record in the Hospital books. Since the first of September 1869, from which time the systematic treatment of Hepatitis by Chloride of Ammoni-

un first commenced, (a period of 9 months) 31 cases of the disease, have been treated, either by myself, or the Assistant Surgeons of the Battalion ; and of these, 6 were undoubted cases of Abscess of the liver, presenting the physical signs, the general symptoms, and the well marked hectic fever, diagnostic of the disease under such circumstances. In four of the cases, the hectic fever was severe ; in one especially so, and accompanied with excessive wasting of the tissues, and extreme prostration of the vital powers, patient exhaling the cadaveric odor, at times observed in low and exhausting disease with typhoid symptoms.

Hepatitis is a disease of this Station, and has been the occasion of much mortality here, as elsewhere. From a statement, kindly furnished by Dr. Shelton, Principal Medical Officer, British Medical Service, I find, that in the Head Quarters 2-24th Regiment, Rangoon, and Detachment Port Blair, out of a total strength of 795, there were, during the year 1868, 32 admissions and 5 deaths from Hepatitis. "The P. M. in each instance shows the cause of death to have been hepatic abscess."

During the same period (1868) in the 2-21st, Fusiliers at Secunderabad, out of an average strength of 868, there were 86 admissions, and six deaths, from the same cause. The disease was treated on the usual expectant plan, and with a result not very satisfactory. Compare these figures with those which follow, and see how different the result obtained under the treatment by Chloride of Ammonium.

Since September 1st, 1869 to May 31st 1870 (a period of 9 months) there have been 31 ad-

missions from Hepatitis, at this station, out of an average strength of 608. Of these, 6 were undoubted cases of abscess of the liver, and in several, abscess was strongly suspected. All of the above were successfully treated, without a single death. It is also remarkable, that, since the arrival of the Battalion at this station at the end of December 1868, up to 31st May 1870, embracing a period of 17 months, there have been 58 admissions from Hepatitis and but one death. The fatal termination, in this instance furnishing negative proof, corroborative of the testimony already adduced, of the very great success of the Chloride of Ammonium treatment; for it is to be observed that the patient died at a period, antecedent to the introduction of that practice, that dysentery of a very severe type supervened, uncontrolled by any of the remedies employed, and that the autopsy revealed the existence of abscess, which occupied almost the entire liver, the structure of which, was reduced to a mere shell,—the large intestine was ulcerated throughout its entire extent, and in places gangrenous.

In not one of the cases treated by Chloride of Ammonium, was there the slightest tendency to Dysentery observed.

According to the Army Medical Department, Report for 1867, out of a total strength of 56,896 European Troops in India, there were, during the year, 3078 admissions from Hepatitis, and 157 deaths. During the same period 368 were invalided on account of the disease, and 96 were discharged the service at Netley.

I confidently look forward to a gradual and great reduction of this vast expenditure of life

and health, in time to come, if the means pointed out in these pages, be faithfully and earnestly carried out, recollecting that it is by attention to small, and seemingly unimportant matters, as regards regimen, diet and nursing. as much as by the prescribing of medicine, that success will be attained. The medical man must think nothing beneath his care and attention, particularly where untrained orderlies and soldier attendants, possessing no knowledge of nursing, are placed over cases of serious illness. The words of the poet are particularly applicable to affairs medical :

“ Think nought a trifle, though it small appear ;
Small sands the mountain, moments make the year.”

At the risk of being considered tedious, and unnecessarily prolix, I cannot refrain from making the following quotation from a leading article in the *Lancet* of 30th October 1869, wherein the writer speaking of the difficulties which the Doctor encounters in civil life, in obtaining aid in the management of the sick room, goes on to say :—

“ In all matters about which he (the Doctor) may omit to give explicit directions, the most fatal errors are frequently made. For example, it is very common for patients to be killed, after enfeebling illness, and when with proper care, they would recover, by being suddenly raised from the recumbent to the semi-erect posture for the purpose of taking nourishment. No practitioner who neglects to lay down very strict rules on this point will fail, to have many unexpected and sudden deaths amongst exhausted patients ; deaths for which he may not always be able to account, but which may be shown, on enquiry, to be traceable to the cause we have indicated.”

Whether the patient be very low or not, the

condition of an inflamed liver, is not unlike that of an inflamed joint, demanding strict quiescence in the recumbent posture; and therefore a steady and intelligent attendant should constantly wait on the patient in all severe cases, and the bed pan, and urinal, should, at all times be at hand, so that the patient may not have the least occasion to quit his bed.*

In the foregoing pages my remarks have been chiefly confined to the therapeutic uses of Chloride of Ammonium in the primary acute stage of Hepatitis, and in Hepatic Abscess; in Chronic Hepatitis, however, it is equally efficacious, as is well illustrated in case 5. In short, I have found it valuable in hepatic affections of whatever form, whether depending on organic disease, or functional derangement. I have also found chronic dysentery, associated with chronic disease of the liver, yield to a few xx . grs. doses of the Chloride of Ammonium, after Ipecacuanha, and other remedies had failed; and I have before me, notes of the case of a young Officer, similarly affected, whose dysentery was checked after a few doses of 8 grs. each. † In such cases from v . to xx . grs.

* Whilst writing, an instance has presented itself, which shows forcibly, how easily a recrudescence of inflammatory action, may be brought about by a cause, which, at least, in this instance, was entirely under the patients control. A man in Hospital, suffering from a severe attack of acute Hepatitis, was suddenly seized with a recurrence of the acute symptoms, local and general, (after these had been allayed for a considerable period, by the previous treatment). The reason was easily discovered; on enquiry, I found, that the patient, having become tired of lying on his back, turned on his side for a short time, and in this simple manner caused the mischief.

† In passive congestion of the liver, I have found a few doses (grs. xx) of the medicine effect a remarkable reduction of the enlarged viscus, and afford great relief to all the symptoms.—In fact, the specific action on the liver, is manifested in almost all the diseases to which that organ is liable.

may be given, dissolved in ounces ii. of infusion of cascarilla, twice or thrice daily, according to circumstances: and to cover the saltish taste of the medicine, a little Ext; Glycyrrhizæ (say grs. v.) may be added to each dose.

It may be interesting to note the number of grains of the medicine administered, in the treatment of the 31 cases of Hepatitis, in the Hospital 2-21st Fusiliers, from 1st September 1869, to 31st May 1870, taken from a record kept by Passed Hospital Apprentice M. Devanboo, attached to the Battalion.

Total number of grains	21,926.
Average No. of grs. administered to each patient	707.27
Maximum do do in any one case (<i>abscess of liver</i>)	2,490.
Minimum do do do (<i>Hepatitis</i>)	120.
Average do exhibited to each patient in 6 cases abscess of liver	} 1,428.	
do do do do do in 25 cases Simple Hepatitis*		569.

*Several of these were strongly suspected to be cases of latent, and deep seated abscess.

It will be seen from the above figures that the Medicine is used pretty freely, and that in some cases very large quantities have been required; in fact its use should be persevered in, till its sensible effects be no longer manifested, or only in a slight degree; and it is well to continue it for sometime afterwards in smaller and more frequently repeated doses, in the event of liver enlarge-

ment, with feeling of stiffness, weight, or other uneasiness continuing. *

Since going to press, I have received the following letter with case from F. Maynard Esqr., Surgeon, Health Officer, Port of Rangoon, which, with his permission, I gladly publish.

The case is an interesting one, faithfully recorded, and well illustrates the therapeutic use of the remedy, and the chief points to be observed in its administration.

RANGOON, June 6th 1870.

MY DEAR STEWART,

I have much pleasure in sending you the notes of a case of Acute Hepatic Abscess under my care and which you kindly saw with me on two occasions.

Having had the advantage of reading your paper on the treatment of Hepatitis with Ammon. Chlor., I have taken some care in noting its therapeutic effects throughout the treatment, and in the report have taken down the exact effects of the medicine, as described by the patient himself; and which seem to agree in a marked manner with the notes of those cases treated by yourself.

*It may be worthy of note, that in India, Chloride of Ammonium is obtainable at a cheap rate in the bazaar, under the Hindustani name——(*Nousādar*)——(*Duk*)——(*Nousāgar*). † I have obtained the salt sufficiently pure for medicinal purposes, in the Rangoon Bazaar for Rs. 1/12 per viss (equal to $3\frac{1}{2}$ lbs. avoirdupois). I mention these facts, because, on one occasion, while I had several serious cases under treatment, I ran out of the salt completely, and none was obtainable in the medical Stores, a circumstance likely to happen in Indian Mofussil Stations as hitherto the drug has been but little in demand, having been used chiefly in the preparation of Cold and other lotions.

†The Burmese name, is, *Zavasa*.

In Tamil, it is called, *Navāch-chāram*.

In Ceylon, it is known under one of its Tamil names *Navāchāram*.

I would remark that instead of using the hot fomentations as usually adopted by you in Hospital practice, I find that in "private practice" it is better to use hot applications in a dry form, as from want of proper attention, or through neglect, or from the greater trouble in using hot fomentations, I seldom find my instructions carried out, and even if they are, the patient generally complains of great discomfort, and sometimes chilliness, from having his clothes, bed linen, and bed saturated, which often tends to produce evil results.

The plan I adopt, and which is easily carried out, is,—to place two bricks on a burning charcoal chatty, on the top of these I place 2 bags of the size required, and only $\frac{2}{3}$ filled, with 1 part salt and 2 parts bran. I do not fill the bags, as they would not then become so readily conformable to the shape of part required.

The heat is retained longer than with hot fomentations and is much pleasanter to the patient, and I believe has an equally beneficial, if not better effect. One bag is always kept hot during the application of the other.

Although this is the first case of Hepatitis that I have treated with the Hydrochlorate of Ammonia, I shall (from the decided therapeutic effects I have seen produced in the treatment of my own recorded case, and from the experience I have gleaned from having had the opportunity of seeing the same treatment adopted with such success in your own Hospital) undoubtedly carry out a similar plan in all cases that may hereafter come under my care, and I trust and believe with like beneficial results. I sincerely hope that the perusal of your pamphlet may lead more medical men to give this treatment a trial, and I feel sure that if the rules laid down are properly carried out, they will meet with similar success to cases recorded, and will look upon the Ammon : Chlor : as an almost specific therapeutic agent in the treatment of Hepatitis. If you think my report of any interest I leave you to make what use you please of it.

I remain

Yours sincerely,

F. MAYNARD

*Case of Acute Hepatic Abscess under the care of*F. MAYNARD *Surgeon.**Health Officer, Port of Rangoon.*

May 4th 1870.—10. 30. A. M. Mr. W———ætat 35, "European," born in Burmah (of highly nervous temperament, accustomed regularly to take his 3 glasses grog daily, besides exceeding when in company) visited me, and complained of acute pain in the right hypochondrium, extending over nearly the whole of right side of abdomen, and more especially severe in the iliac region, was unable to stand upright, or take an ordinary deep inspiration, and constantly cried out with pain. On examination found slight fulness below margin of right ribs, and great tenderness on the slightest pressure, over whole of right side of abdomen. Skin hot, pulse 126, an anxious expression of countenance, sallow complexion, tongue furred. Stated he had suffered from pain in hypochondrium for 6 days, that 3 days ago he had a distinct rigor, followed with fever, and that the pain had been increasing up to date. I advised his return home immediately, and ordered perfect rest, hot application to the side, and Pulv: Doveri grs. 8 immediately, and to repeat in 4 hours. At 2-30 was visited by Dr. Stewart and myself; found him lying on his back, with legs drawn up, and unable to move owing to the acute pain. His skin was slightly moist, and pulse reduced to 116 (excessive action of heart on first examination, probably attributable to the exertion of walking to see me under existing circumstances). Was unable to bear percussion, or the slightest pressure on any part of right side of abdomen. Ordered 8 leeches to side and Liqueur. Ammon: Acet: Drs. 2 Tinct: Hyoseyami m. v. in barley water every hour, and at bed time Tinct: Hyoseyami Drs. i. Hot applications with salt and bran bags to be constantly applied after removal of leeches.

May 5th.—Passed a bad feverish night; had no sleep, pain more or less removed from iliac region and centered over the hepatic region, and especially just below the margin of right inferior ribs, where it was very severe; unable to bear the slightest pressure, or turn on either side. Bowels open once during the night, dark coloured and very offensive. Skin slightly moist, and pulse 102. At 9-15 A. M. administered Ammon: Hydrochlor: grs. xx. in cinnamon water, at 9-35—20 minutes after, he described that he had a sensation of warmth in the stomach, which gradually extended over the whole surface of body. General perspiration gradually followed, and the pain

in hypochondrium was sensibly relieved; and he began to think he was "getting all right again." (His own words). He felt drowsy, and inclined to doze off to sleep, but shortly a kind of twisting pain came on in his right groin, and gradually extended up, returned to its former seat below margin of right inferior ribs. Visited at 2 p. m. found abdomen much distended with flatus, of which he was constantly passing large quantities. Had made urine twice, high coloured and scalding; Pulse full, 102. Tongue dry and furred, complaining of great thirst; ordered milk and water and barley water, and to continue hot applications. Visited him at 6 p. m. Had made water once since 2 p. m., had slept $\frac{3}{4}$ hour, and on the whole pain greatly reduced. Abdomen less distended, and feeling altogether more comfortable. Pulse 100.—Tongue dry and furred and constant thirst. In addition to his barley water and milk, an egg to be beaten up with milk. Repeated Ammon: Hydroch: haustus at 5 p. m. Same symptoms as described after first dose, ensued; at 5-30, pain removed towards centre of abdomen, 3 inches below umbilicus.

May 6th.—Visited at 10-15 A. M. After last evening's draught, the pain was relieved for some time, but gradually returned to old spot; he had passed a bad night, no sleep. First thing in morning, vomited eggs and milk, and stated that afterwards pain had shifted over to left side. At 8 A. M., took Ammon: Chlor: haustus, and 13 minutes after; had a great deal of pain in stomach, which only lasted 5 minutes, and at 8-30 sensation of heat of the whole cutaneous surface set in, followed by perspiration.

9. A. M. Had a moderate, soft, dark and offensive motion; after this he dozed off, and I found him asleep when I called.

Visited at 1-30 p. m. Had taken a cup of chicken broth with relish, made water more abundantly. Pulse 108, smaller. Skin moist; pain in hepatic region less. Unable to turn on either side.

Visited again at 6-15 p. m. passed one motion since 1-30 p. m. light colored and watery. Took chicken broth at 3 p. m., took Ammon: Hydroc: haustus at 5. p. m.; on this occasion, no peculiar sensation about epigastrium observed, but $\frac{1}{2}$ an hour after, general sensation of warmth, perspiration and drowsiness gradually ensued. No pain in hepatic region, excepting when moving, and can now allow slight pressure below margin of right lower ribs, where there is a distinct prominence. Makes water much more abundantly Thirst still great

May 6th.—Pulse 102. Skin moist, tongue furred, the bran and salt bags have been kept constantly applied, and from these he states he experiences great comfort and relief.

May 7th.—Visited at 10-30. Had slept a little last night, bowels opened 8 times since 11 o'clock last evening, dark brown, watery and offensive, accompanied with a large amount of flatus. Has an anxious expression of countenance, with sallow complexion, and conjunctivæ slightly injected; is very hysterical, and low, but though feeling very weak, he describes himself as better, as he can turn over on to the left side without pain, and has only slight pain at margin of lower ribs on right side, when he tries to raise himself up; pulse 96. Tongue cleaner, thirst still excessive; to continue former diet with addition of beef tea. The morning draught only caused sensation of warmth and perspiration over head and extremities. Visited at 8 p. m. had no perspiration after evening draught, but feels inclined to sleep; complains of pain again in the old spot occasionally. Pulse 102.

May 8th.—Visited 8-45 a. m. slept well, but had four motions during night. Pulse 90. Tongue less furred. Ordered Pil: Hyd: Gr: i, Pulv: Doveri Grs: iii, every second hour during day. Diet and treatment as before.

Visited at 7 p. m. Pulse 90. Skin cool and moist, makes large quantities of water, pain less.

May 9th.—Visited 9 A. M. States that the Ammon: Hyd: Haustus has not now the same effects as formerly, only producing drowsiness and slight perspiration. Seems very low and desponding. Ordered port wine and jelly in addition to former diet.

2 P. M. Visited by Dr. Stewart and self; case considered by Dr. Stewart to be progressing favourably. Can bear slight pressure over hepatic region; but as no good can result from these examinations, I forbear making them. Enlargement of side decidedly decreased. To omit Pil: Hydr: Pul: Doveri.

May 10th.—No pain referred now to hepatic region; but a dragging sensation described, can breathe freely, and turn over on both sides. Pulse 90. To continue same diet and treatment.

May 11th.—Visited 10-30 A. M. Slept well last night, has no pains on turning or getting up; only experiences the dragging sensation as described yesterday when he gets up or takes a deep breath. Tongue clean and moist. Pulse 84. Perspired profusely last night about the head and face; body

hot; bowels once open, of better consistence. Ammon: Hyd: taken night and morning, no perceptible effect produced but that of drowsiness. Slept off and on greater part of day.

May 12th.—Had profuse perspiration all last night, and towards morning, his head, hands and feet were burning hot; this passed off, and at 10 a. m. he stated that he felt quite well, only weak. Pulse 84.

May 13th.—Last night experienced same profuse perspiration, and heat of hands, &c. as described yesterday, and lasting 3 or 4 hours. This morning for 1st time felt pain in right shoulder which lasted about 2 hours; at 10 a. m. had a distinct throbbing sensation under margin of lower right ribs, which lasted a few hours, and apparently relieved by the constant application of salt and bran bags. Pulse 90.

May 14th.—Visited 11-45 a. m. Pulse 90. Skin generally dry; hands hot and dry. Slept from 7 o'clock to 12 last night, and after that, very restless; profuse perspiration of head and face, and great heat of surface of body and extremities; this passed away towards morning, Tongue furred and parched. Incessant thirst. No pain except in right shoulder.

May 15th.—Visited at 3 p. m. Went to sleep at 8 o'clock last evening, and awoke at 10 with sensation of great heat in head and extremities, and especially in palms of hands; this lasted about 20 minutes, and then profuse perspiration ensued. Slept for 4 hours, and awoke feeling well. Pulse 92. Bowels opened 3 times, passing much wind. The Ammon: Hyd: Haustus to be omitted in morning, and a Diaphoretic Mist: ordered during day.

May 16th.—Visited 12-30. Had no return of fever last night. Bowels relaxed. Pulse 86, skin soft and moist. Treatment as yesterday.

May 17th.—Visited 11-30 a. m. Pulse 75. Skin soft and moist, Tongue cleaner, slept pretty well. Bowels open once to-day; has occasional throbbing pain in hepatic region.

May 18th.—Altogether better, pulse 76. No pain; slept well. Has no thirst; continue Diaphoretic mixture, and Ammon: Hyd: only at bed time.

May 20th.—Same as yesterday, &c.

May 21st.—Pulse 80. Had a hard costive motion. To discontinue Diaphoretic mixt: and continue Ammon: Hyd: bis in die.

May 25th.—Has been gradually improving; can get up by himself, turn round, and walk without pain, and can bear firm

pressure over whole hepatic surface. *Allowed* to sit up. Ammon : Hydrochl : reduced to grs x, bis in die c. Decoct : Cinchon : nocte maneque; ordered mutton chop and 3 glasses port wine daily.

May 30th.—Has a good appetite, tongue clean, bowels regular. On examination I find great enlargement of liver which, on standing up, extends to $3\frac{1}{2}$ inches below margins of inferior right ribs, and is hard, firm, and the size of a flattened orange. No pain experienced on firm pressure or percussion over this. Patient describes himself as feeling perfectly well, free from any pain, and gaining strength daily, can take moderate morning and evening exercise, and is gradually commencing his ordinary diet. Considered convalescent.

This case will be carefully watched, and notes of interest recorded.